

In the Claims

1           1. (original) A digital image sensor, comprising:  
2                 a two-color photo-detector having a first photo-detector element capable of  
3     absorbing light within a first range of wavelengths and a second photo-detector element  
4     capable of absorbing light within a second range of wavelengths, said first photo-detector  
5     element being in an elevated relation with said second photo-detector element, said first  
6     photo-detector element being electrically isolated from said second photo-detector element.

1           2. (original) The sensor of Claim 1, further comprising:  
2                 a substrate, said second photo-detector element being formed within said  
3     substrate.

1           3. (original) The sensor of Claim 2, further comprising:  
2                 a dielectric layer between said first photo-detector element and said second  
3     photo-detector element, said dielectric layer electrically isolating said first photo-detector  
4     element from said second photo-detector element.

1           4. (original) The sensor of Claim 1, wherein said first photo-detector element is  
2     formed of amorphous silicon having a thickness selected to absorb light within said first  
3     range of wavelengths and pass light within said second range of wavelengths, said second  
4     photo-detector detecting light within said second range of wavelengths passed by said first  
5     photo-detector element.

1           5. (original) The sensor of Claim 1, wherein said first and second photo-detector  
2     elements are photodiodes.

1           6. (original) The sensor of Claim 5, wherein said photodiodes are PIN photodiodes.

1           7. (original) The sensor of Claim 1, further comprising:  
2                   a color filter in an elevated relation with said first photo-detector element, said  
3 color filter absorbing light within a third range of wavelengths and passing light within said  
4 first and second ranges of wavelengths.

1           8. (original) The sensor of Claim 7, further comprising:  
2                   a transparent metal conductor layer between said color filter and said first  
3 photo-detector element.

1           9. (original) The sensor of Claim 1, further comprising:  
2                   circuitry for driving said first photo-detector element and said second photo-  
3 detector element, said first photo-detector element being in an elevated relation with said  
4 circuitry.

1           10. (original) The sensor of Claim 1, further comprising:  
2                   a second two-color photo-detector having a third photo-detector element in an  
3 elevated relation with a fourth photo-detector element, said third photo-detector element  
4 being electrically isolated from said fourth photo-detector element.

11. (original) The sensor of Claim 10, wherein said two-color photo-detector further comprises a first color filter in an elevated relation with said first photo-detector element of said first two-color photo-detector, said first color filter absorbing light within a third range of wavelengths and passing light within said first and second ranges of wavelengths, said second two-color photo-detector further comprising a second color filter in an elevated relation with said third photo-detector element of said second two-color filter, said second color filter absorbing light within either said first or second ranges of wavelengths, passing light within said third range of wavelengths and passing light within either said first or second ranges of wavelengths not absorbed by said second color filter.

12. (original) The sensor of Claim 10, wherein said third photo-detector element is capable of accumulating charge upon reception of light within a third range of wavelengths and said fourth photo-detector element is capable of accumulating charge upon reception of light within a fourth range of wavelengths.

13. (original) The sensor of Claim 12, wherein said first photo-detector element produces a first color value, said second photo-detector element produces a second color value, said third photo-detector element produces a third color value and said fourth photo-detector element produces a fourth color value, and further comprising:

a third two-color photo-detector having a fifth photo-detector element in an elevated relation with a sixth photo-detector element, said fifth photo-detector element being electrically isolated from said sixth photo-detector element, said fifth photo-detector element being capable of absorbing light within said first range of wavelengths and producing a fifth

9 color value, said sixth photo-detector element being capable of absorbing light within said  
10 second range of wavelengths and producing a sixth color value; and  
11 a fourth two-color photo-detector having a seventh photo-detector element in  
12 an elevated relation with an eighth photo-detector element, said seventh photo-detector  
13 element being electrically isolated from said eighth photo-detector element, said seventh  
14 photo-detector element being capable of absorbing light within said first range of  
15 wavelengths and producing a seventh color value, said eighth photo-detector element being  
16 capable of absorbing light within said second range of wavelengths and producing an eighth  
17 color value.

1 14. (original) A digital image sensor, comprising:

2 a two-color photo-detector having a first photo-detector element capable of  
3 absorbing light within a first range of wavelengths and a second photo-detector element  
4 capable of absorbing light within a second range of wavelengths, said first photo-detector  
5 element being in an elevated relation with said second photo-detector element; and

6 a dielectric layer between said first photo-detector element and said second  
7 photo-detector element.

1 15. (original) The sensor of Claim 14, further comprising:

2 a substrate, said second photo-detector element being formed within said  
3 substrate.

1           16. (original) The sensor of Claim 14, wherein said first photo-detector element is  
2   formed of amorphous silicon having a thickness selected to absorb light within said first  
3   range of wavelengths and pass light within said second range of wavelengths, said second  
4   photo-detector detecting light within said second range of wavelengths passed by said first  
5   photo-detector element.

1           17. (original) The sensor of Claim 14, further comprising:  
2               a color filter in an elevated relation with said first photo-detector element, said  
3   color filter absorbing light within a third range of wavelengths and passing light within said  
4   first and second ranges of wavelengths.

1           18. (original) The sensor of Claim 17, further comprising:  
2               a transparent metal conductor layer between said color filter and said first  
3   photo-detector element.

1           19. (original) The sensor of Claim 14, further comprising:  
2               circuitry for driving said first photo-detector element and said second photo-  
3   detector element, said first photo-detector element being in an elevated relation with said  
4   circuitry.

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